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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,057	09/13/2000	Akira Ohtani	Q60771	7619

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EXAMINER	
CHOWDHURY, TARIFUR RASHID	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/661,057	OHTANI ET AL.	
	Examiner	Art Unit	
	Tarifur R Chowdhury	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3 and 5-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3 and 5-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinata et al. (Hinata), USPAT 5,687,465 in view of Khan et al., (Khan), WO 97/39380 and Yuji Sakamoto (Yuji), JP 02-058527 and Suzuki et al., (Suzuki), USPAT 4,576,896.

4. Hinata discloses and shows a liquid crystal cell substrate comprising a polycarbonate film supporting substrate (9) (applicant's resin substrate) and, closely adhered thereon, a gas barrier layer (10), a resin hard coat layer (11) and a polarizing layer (12) (Fig. 11, col. 5, lines 33-38).

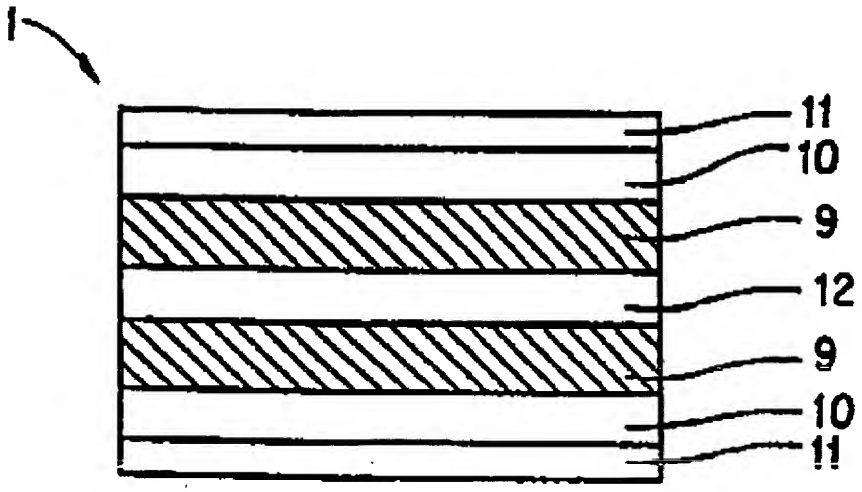

FIG.11

Hinata does not explicitly disclose that the resin hard coat layer is crosslinked.

However, it is known in the art that a crosslinked resin layer provides better mechanical strength and has excellent heat resistance. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the resin layer of Hinata with a crosslinked resin layer since it will have the advantage of better mechanical strength and excellent heat resistance.

Hinata further differs from the claimed invention because he does not disclose that the polarizing layer comprising a coating such as a lyotropic substance containing a dichroic dye or a dichroic dye having lytropic liquid crystallinity or a liquid crystal polymer layer containing a dichroic dye.

Khan discloses a liquid crystal display with polarizing layer wherein the polarizing layer comprises a coating. Khan further discloses that a polarizing coating formed from

a lyotropic liquid crystalline composition based on dichoric dyes provide high thermal and light stability (page 6, lines 13-21).

Khan is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation of using a polarizing layer comprising a coating such as a lyotropic substance containing a dichroic dye.

Therefore, it would have been obvious to one of ordinary skill n the art at the time of the invention was made to modify the polarizing layer of Hinata such that the polarizing layer comprising a coating of lyotropic substance containing a dichroic dye so that the polarizing layer will have the advantage of high thermal and light stability.

Hinata still differs from the claimed invention because he does not explicitly disclose the thickness of the polarizing layer being 5 μm or less and that the substrate is obtained by flow casting.

It is common and desirable practice in the art of liquid crystal to obtain a device that is lightweight and thin. Further, typical thickness for a polarizing layer is in the range of 5 to 80 μm (overlaps the claimed range at 5 μm) but is not limited thereto. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the polarizer of Hinata to have a thickness of 5 μm to avail a proven thickness for a polarizer and to obtain a lightweight and thin display.

Further, in claim 3, applicant is claiming the product (a device) including a method (i.e. a process) such as the substrate being obtained by flow casting process. Therefore, the limitation is considered as a "product-by-process" limitation. In spite of the fact that a product-by-process claim may recite only process limitations, it is the

product, which is covered by the claim and not the recited process. Further, patentability of a claim to a product does not rest merely on a difference in the method by which the product is made. Rather, it is the product itself, which must be new and unobvious. Also, the process recited adds no structural limitations (See MPEP sec 806.05(f)).

Further, it is common and known in the art to form a substrate by any suitable method such as either a flow casting method or a casting molding method or an injection molding method or a roll coating molding method etc. Therefore, it would have at least been obvious to one of ordinary skill in the art at the time of the invention was made to use flow casting method to obtain the substrate so that a proven method to form a substrate is availed.

Still lacking is the limitation such that the substrate is formed from a liquid epoxy resin and a solid epoxy resin.

Yuji discloses a substrate that is formed from a liquid epoxy resin and a solid epoxy resin. Yuji further discloses that by forming a substrate from a liquid epoxy resin and a solid epoxy resin, it is possible to obtain a substrate that is outstanding in resistance to heat and moisture (abstract).

Yuji is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to use a substrate that is formed from a liquid epoxy resin and a solid epoxy resin.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the substrate of Hinata by forming the

substrate from a liquid epoxy resin and a solid epoxy resin so that a substrate that is outstanding in heat resistance and moisture is obtained, as per the teachings of Yuji.

Still lacking is the limitation that the resins used to form the substrate are alicyclic epoxy resin.

Suzuki discloses an optical recording medium wherein the substrate is made of alicyclic epoxy resin (col. 2, lines 40-42). Suzuki also discloses that alicyclic epoxy resins are preferably used because they are low in viscosity and hence excellent in castibility (col. 2, lines 61-63).

Suzuki is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to use alicyclic epoxy resins to form a substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the substrate of Hinata when modified by Khan and Yuji by forming the substrate using alicyclic epoxy resins so that low viscosity and thus excellent castibility is obtained, as per the teachings of Suzuki.

Accordingly, claims 3 and 5 would have been obvious.

As to claim 7, Hinata shows in Figure 11, that the polarizing layer (12) is in contact with one side of the supporting substrate (9) (applicant's resin substrate).

5. Claims 2, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinata in view of Khan and Yuji and Suzuki as applied to claims 3, 5 and 7 above and further in view of ""HDBU" (High Density Build Up) Organic Package Technology that is first in the industry to employ "Laser via" method" by Kyocera Corporation, February 15, 1999 (Document A).

6. As to claims 2 and 6, Yoshida does not explicitly disclose that the resin substrate comprises a thermosetting epoxy resin.

Document A discloses the use of a substrate comprising thermosetting epoxy resin. Document A further discloses that thermosetting resin provides superior reliability (page 2).

Document A is evidence that ordinary workers in the art would find a reason, suggestion or motivation of using a substrate comprising thermosetting epoxy resin.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the resin substrate of Hinata with a substrate that comprises thermosetting epoxy resin in order to obtain a substrate that provides superior reliability.

As to claim 8, Hinata shows in Figure 11, that the polarizing layer (12) is in contact with one side of the supporting substrate (9) (applicant's resin substrate).

Response to Arguments

7. **Applicant's arguments:**

a) Hinata does not disclose any material other than polycarbonate as the material of the substrate.

b) Suzuki et al., disclose a mixture of an aromatic epoxy resin and an alicyclic epoxy resin as a material for an optical medium. However, the instant invention contain an aromatic group and thus one of ordinary skill in the art would not have been motivated to substitute the mixture of Suzuki et al. with an alicyclic liquid epoxy resin that has basically different chemical structure as intended in Suzuki et al. Also Suzuki et

al., fail to suggest a solid epoxy resin. The mixture of an aromatic epoxy resin and a solid epoxy resin disclosed by JP '527 (Yuji) differ from the resins used in the presently claimed invention and thus one of ordinary skill in the art would not be motivated to substitute them.

8. **Examiner's response:**

a) The rejection is based on 35 U.S.C 103 not 35 U.S.C 102. Further, it is also acknowledged by the examiner that the substrate of Hinata is made of a different material than claimed. Accordingly, the examiner relied on the teachings of other references to modify the substrate of Hinata.

b) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the solid and the liquid alicyclic epoxy resin not containing aromatic group; Epoxy resins such as cresol novolak epoxy, phenol novolak epoxy differs from the resins used in the present invention.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore, the rejection was proper and thus maintained.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

T. Chowdhury
Primary Examiner
Technology Center 2800

TRC
November 08, 2003